# Instruction manual

# Chamber machine C100

MC06

Serial number:

.....

Service address:

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# Important information on the manual

Read the manual carefully before you begin working with the machine.

- This manual is an integral component of the unit. Keep the manual for future reference.
- Do not work with the machine until you have read through the manual and completely understood its contents.
- Please contact MULTIVAC as soon as possible if there is something you do not understand in the manual! Your comments will help us to further improve the manual.
- Do not start up the machine if there are any visible defects!
- Only trained personnel are permitted to install, operate and service the machine. The operating company is responsible for the qualifications and training of personnel.
- If you sell, transfer ownership or lend the machine to others, you must provide the manual along with it!

For reasons of clarity, some illustrations show the machine without the prescribed safety covers. Operating the machine with the safety covers remove is prohibited.

**WARNING**

**Injury hazard!**
Altered, damaged, defective or incorrectly applied or missing safety devices will render the danger zones unprotected.
Unprotected danger zones can cause serious or even fatal injuries.

- ➢ Do NOT alter the safety devices.
- ➢ Use only genuine MULTIVAC spare parts and accessories.

Before switching on the machine each time:

- ➢ Check that all safety guards close completely and prevent reaching into the danger zones.
- ➢ Check that only those safety devices are used which are suitable for the machine equipment.
- ➢ Check that all safety devices are functional and in a technically flawless condition.

## Machine documentation

- Instruction manual
- EU Declaration of Conformity
- Supplementary sheet "Super-PIN"

**Info**
The complete scope of delivery is listed in the order confirmation.

## Changes not covered in the manual

Continuous development is the foundation for ensuring that our machines are technically advanced and of high quality. For this reason, you may discover slight deviations between the specifications in the manual and your machine. We also cannot rule out errors. The specifications, figures and descriptions in this manual do not constitute a legal contract between the manufacturer and customer.

## Symbols used

Warnings draw your attention to hazards. Warnings are displayed in the following form:

**DANGER**

**Danger from electrical shock!**
Used to indicate that serious danger of electrical shock is imminent.
Non-observance can cause serious or even fatal injuries.

- Observe the notices for avoiding danger.

**DANGER**

**Immediate danger!**
Used to indicate that serious danger is imminent.
Non-observance can cause serious or even fatal injuries.

- Observe the notices for avoiding danger.

**WARNING**

**Dangerous situations!**
Used to indicate dangerous situations.
Non-observance can cause serious or even fatal injuries.

- Observe the notices for avoiding danger.

**CAUTION**

**Potentially dangerous situations!**
Used to indicate potentially dangerous situations.
Ignoring this danger can cause injuries.

- Observe the notices for avoiding danger.

**NOTICE**

**Danger of equipment damage!**
Used to indicate potentially dangerous situations.
Ignoring these situations can cause equipment damage.

- Observe the notices for avoiding danger.

Information that contributes to a better understanding of how the machine functions is shown in the following form:

**Info**
Indicates information on special features deserving your attention.

Instructions to follow are displayed in the following form:

➢ Press key A.

➢ Release screw B.

➢ Press key C.

- Enumerated items are marked with bullet points.
  – Dashes are used to mark sub-items of enumerated lists or sequences of steps to be taken.

## Manual layout

- Chapter 1 "Safety":
  Generally valid safety instructions are to be observed.
- Chapter 2 "Description":
  Description of the main assemblies, functions in the display and technical data.
- Chapter 3 "Start-up":
  Notes on starting up and making connections.
- Chapter 4 "Operation":
  Information on using the machine.
- Chapter 5 "Adjustment work and setup":
  Notes regarding adjustment and setup.
- Chapter 6 "Cleaning":
  Instructions for cleaning and information on care products.
- Chapter 7 "Maintenance":
  Maintenance table and instructions for maintenance.
- Chapter 8 "Troubleshooting":
  Contains information on how to recognise the causes of malfunctions and troubleshoot them.
- Chapter 9 "Shutdown, transport, storage":
  Instructions for shutting down, transporting and storing the machine.
- Chapter 10 "Disposal":
  Notes regarding disposal of the machine.
- Chapter 11 "Spare parts":
  Machine parts subject to wear and spare parts.

# 1 Safety

## 1.1 General safety instructions

The machine incorporates the latest technological principles. Nevertheless, potential hazards for persons, the machine and other materials cannot be entirely excluded.

- Before you start up the machine, read through the instruction manual and follow the instructions contained therein.
- Keep the instruction manual near the machine for future reference.
- Observe the safety and accident prevention regulations valid in your country.

### 1.1.1 Target group

The tasks described in this manual may only be performed by trained personnel under observance of the operating manual.
The manufacturer will not be liable for any damages resulting from improper operation.

**WARNING**

**Injury hazard!**
Operating the machine in a negligent and inattentive manner is very dangerous.
Negligent handling, inattentiveness and a disorderly work area can cause serious injuries.

- ➢ Do NOT operate the machine if you are tired or under the influence of alcohol or medication.
- ➢ Work attentively and with care.
- ➢ Wear personal protective equipment.
- ➢ Keep the work area clean and orderly.

**NOTICE**

**Danger of equipment damage!**
Improper use of the machine can damage it.
Damage can cause the machine to malfunction, which in turn results in faulty packs.

- ➢ Do NOT overload the machine.
- ➢ Clean and service the machine on a regular basis.
- ➢ Check if the machine is in full working order prior to starting work.
- ➢ Do NOT start the machine if you notice defects, damage or a change in the operating behaviour of the machine.
- ➢ Have malfunctions and damage repaired immediately by an authorised specialist.
- ➢ Repairs and service work should only be carried out by an authorised specialist.

### 1.1.2 Unauthorised modifications and manufacture of spare parts

Genuine MULTIVAC spare parts and accessories provide the highest level of safety for personnel. Parts and equipment from other manufacturers have not been tested by MULTIVAC and are therefore not approved. The use of such parts can alter the properties of the device and thereby impair safe operation.

**WARNING**

**Injury hazard!**
It is very dangerous to use third-party parts.
The use of third-party parts endangers safe operation and can cause serious injuries.

- Do NOT perform any unauthorised modifications or conversions.
- Do NOT modify or remove any protective or safety devices.
- Use only genuine MULTIVAC spare parts and accessories.

The manufacturer disclaims any liability for damage caused by the use of third-party parts or unauthorised modifications.

Fig. 1: Pro Original

## 1.2 EC Conformity

In the design and construction of packaging lines, packaging machines or auxiliary packaging machines, the following regulations have been observed:

- EC Machinery Directive 98/37/EC or 2006/42/EC
- EC Low Voltage Directive 2006/95/EC (exception: industrial trucks such as lift trucks and die change trolleys).
- EC Electromagnetic Compatibility Directive 2004/108/EEC (exception: industrial trucks such as lift trucks and die change trolleys).
- REACH regulation (EC) No. 1907/2006.
- PFOS directive 2006/122/EC.

Agent authorised to compile the relevant technical documentation according to Directive 2006/42/EC:

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## 1.3 Intended use

This machine is a technical piece of equipment to be used exclusively for production purposes. Use the machine only to package products in prefabricated film pouches. The film pouches are closed with a seal seam.
For specifications see "Technical Specifications".
Any other use is considered improper and can endanger persons, the product and the machine.

### 1.3.1 Electromagnetic compatibility (EMC)

The machine has been designed for use in residential, business and industrial areas (without a separate power substation, it can be connected directly to the public mains). Operation can be impaired when used in an industrial environment.

## 1.4 Foreseeable incorrect use

The following work methods are not in accordance with regulations and therefore are prohibited:

- Operating in an atmosphere capable of explosion.
- Packing of highly flammable, combustible or explosion-prone products.
- Packing of dust-forming or powder-forming material.
- Gas flushing of film pouches with explosive gas mixtures (e.g. oxygen proportion over 21 %).
- Aseptic packing of products.

**Info**
Misuse will exclude any liability on the behalf of the manufacturer. In such a case, the operating company is solely responsible.

## 1.5 Warning of incorrect use

- Incorrect use

  For example: sealing times that are too short or too long and therefore result in improperly sealed packs which in turn damage the product.
- Neglecting the following work tasks:
  - Inspections.
  - Cleaning work.
  - Maintenance work.
- Use of third-party parts, i.e. parts that are not genuine MULTIVAC spare parts.
- Operation under impermissible environmental conditions.

## 1.6 Residual risks

The safety instructions in this manual serve as guidelines for trained machine operators so that they can work safely with the machine. The manufacturer cannot however foresee all possible product-related hazards. This is why the safety instructions and warnings on the machine and in this manual cannot be considered exhaustive. The operating company and machine operators are ultimately responsible for safety.

## 1.7 Obligations of the operating company

The machine and operating materials are a potential source of hazards. The operating company is required to draw up a directive that explains how to handle dangerous machines or operating supplies. The required information can be found in the following documents:

- The EC directives for occupational safety.
- National legislation.
- Accident prevention regulations.
- This manual.

The operating company is also responsible for issuing directives for conduct in emergencies.
The operating company is required continuously to monitor the technical condition of the entire machine, for example:

- Visible defects or damage
- Changes in the operating behaviour

**Info**
Do NOT start up the machine if there are visible defects!

### 1.7.1 Selection of personnel and personnel qualifications

**Injury hazard!**
Ignorance of proper machine handling is very dangerous.
Improper handling can lead to serious injuries.

- Instruct personnel regarding how to handle the machine correctly.
- Assign only instructed and qualified personnel.
- Trainees or other persons receiving instructions may only operate the unit under the constant supervision of an experienced specialist.
- Observe the legal minimum age for personnel.
- Delegate responsibilities.
- Inform operating personnel about measures for avoiding hygienic risks.
- Have clearly written instructions available for operating personnel. If necessary, order a manual from the manufacturer in the respective official language.
- Only qualified electricians are permitted to work on the electrical equipment.
- Service operations and repair work should be carried out by authorised specialists only.

### 1.7.2 Personal protective gear

The operating company must ensure that machine operators wear the required personal protective equipment (foot protection, head gear, gloves, etc.) in accordance with the applicable national guidelines. In Europe, the directive 89/656/EEC specifies the minimum mandatory use of personal protective gear.

### 1.7.3 Specific dangers

The operating company must check whether specific dangers are present during operation, for example, dangerous vapours. The operating company must take any measures required to avoid or, if not possible, to limit danger.

### 1.7.4 Measures for avoiding hygienic risks

A high standard of hygiene is achieved through design, choice of materials and workmanship. It is imperative that this high level of hygiene be maintained by each operating company. Particularly when packaging foods or medically sterile goods, the current valid hygiene standards must be strictly observed. Before taking the machine into operation, your safety/health officer must clarify which regulations (laws, directives, standards etc.) apply to the product that is to be packed and how they can be put into practice.

The manufacturer assumes no liability whatsoever for any warranty claims and damage claims of any kind resulting from insufficient hygiene and insufficient cleaning.

**WARNING**

**Health hazard!**
Insufficient or sporadic cleaning can promote the growth of micro-organisms which can change unfavourably the product that is to be packed.
This can severely damage the health of people, especially of the consumers.
The following measures are therefore necessary, considering that the enumeration is not final:

- Create a company cleaning directive.
- Perform cleaning regularly.
- Check the effectiveness of cleaning procedures on a regular basis.
- Follow instructions in the chapter "Cleaning".

### 1.7.5 Gas supply stop valve

The operating company is required to provide the machine with a stop valve for the gas supply. When the stop valve is closed, the supply of gas to the machine is shut off.

### 1.7.6 Checking the packs

**CAUTION**

**Health hazard!**
Faulty or damaged packs can have far-reaching consequences, for example, spoiled products.
Spoiled products can pose a health hazard.

- Check packs on a regular basis during running operation.
- Do NOT bring faulty or damaged packs into circulation.

**Info**
It is the operating company's responsibility to determine the overall testing procedure.

**Test procedure**

Depending on the type of film used and the demands placed on the packs, various types of tests are available, e.g.:

- Checking seal seam width.
- Visual inspection (visual assessment).
- Storage test (storing “good packs” for a defined period and then re-inspecting).
- Stacking test (stacking “good packs” on top of each other for a defined period and then re-inspecting).

- Checking the seal seam strength with a tensile testing machine.
- Low-pressure test (for vacuum packs).
- Measuring the residual oxygen (for gas-flushed packs).

A leaky pack can result from the following errors:

- A leaky seal seam.
  - The packing material is dirty in the seal seam area.
  - The sealing time is too short.
- Damage on the pack.
  - Sharp-edged products piercing through the pack.

**Time of inspection**

The pack always requires inspection at the following times:

- Initial putting of the machine into operation.
- A defined period has been reached in running operation.
- A different pack size was used.
- Other types of film or other film thicknesses were used.
- Spare parts or parts subject to wear were installed.
- A machine malfunction was resolved.
- Settings were made on the machine.

### 1.7.7 Pump protection function

After the machine has been switched off, the vacuum pump remains running for a set time. During this time, the undesirable liquids in the oil of the vacuum pump evaporate. This increases the life span of the vacuum pump. When packaging moist or liquid products, the operator is obligated to perform this function at least once a day (e.g. at the end of a working day). The manufacturer assumes no liability whatsoever for any warranty claims and damage claims of any kind resulting from insufficient performing of this function.

**NOTICE** **Danger of equipment damage!**
Penetration by liquids will damage the vacuum pump.
Damage can cause the machine to malfunction, which in turn results in faulty packs.

➢ Immediately cancel the evacuation procedure when liquids are suctioned.

## 1.8 Machine labels

Safety and information labels have been attached to the machine.

- Do NOT remove these labels.
- Make sure all labels are intact and legible.
- If necessary, clean the labels with soap and water.
  - Do NOT clean the labels with solvents.

- Replace damaged, scratched or illegible labels with new ones.

**Info**
Labels can be obtained from the manufacturer.

### 1.8.1 Safety labels and notices

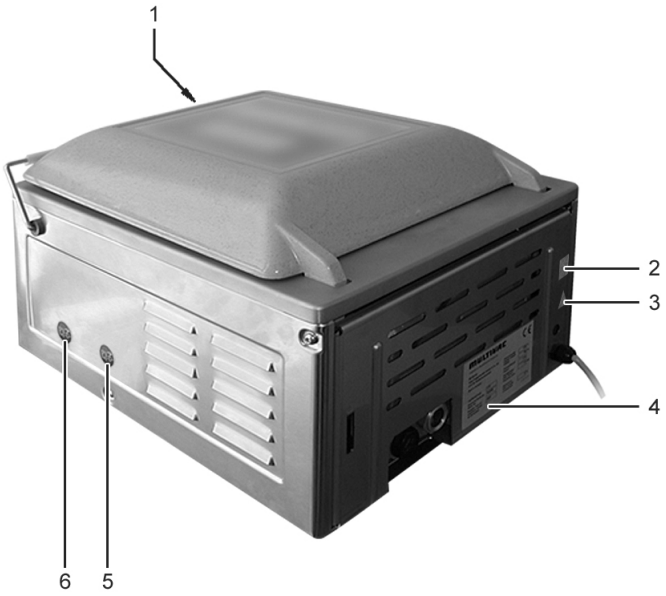
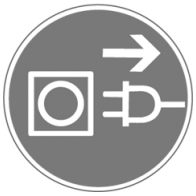



Fig. 2: Position of the labels

| Position | Sign |
|---|---|
| 1 | Fig. 3: Safety-inspected symbol |
| 2 | Fig. 4: Safety label on gas connection (Optional) |

| Position | Sign |
|---|---|
| 3 | <br>Fig. 5: Inert gas input pressure sign (Optional) |
| 4 | <br>Fig. 6: Type plate |
| 5 |  <br>Fig. 7: Unplug the power plug. |
| 6 | <br>Fig. 8: Inclination of the machine |

# 2 Description

## 2.1 Technical specifications

| Power supply connection | |
|---|---|
| Mains voltage | See type plate. |
| Phases | See type plate. |
| Nominal power | See type plate. |
| Nominal current | See type plate. |
| Max. backup fuse | See type plate. |
| Protection type | IP54 |

| Dimensions | |
|---|---|
| Height (a) with open chamber lid | 550 mm |
| Height (a) with closed chamber lid | 330 mm |
| Width (b) | 400 mm |
| Depth (c) | 500 mm |
| Operating height approx. | 256 mm |
| Effective chamber size (B/H/T) | 310 mm/120 mm/310 mm |
| Sealing length | 305 mm |
| Weight approx. | 50 kg |

## Dimensions

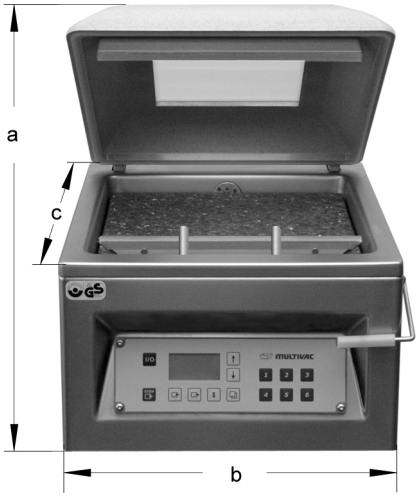



Fig. 9: Dimensions

## Installation conditions and ambient conditions

| | |
|---|---|
| Ambient temperature | +2 °C to +40 °C |
| Storage temperature | -25 °C to +80 °C |
| Relative air humidity during operation or storage of the machine, max. | 85 % non-condensing |
| Inclination of the machine during transport, max. | 15 ° |
| Minimum room size for machines with gas flushing option* | 40 $m^2$ |

*For safety reasons, a minimum room size is mandatory to prevent high concentrations of gas.

## Inert gas (option)

| | |
|---|---|
| Max. input pressure | 2.5 bar |
| Min. input pressure | 0.7 bar |
| Inner diameter of supply line | 8 mm |

## Vacuum pump

| | |
|---|---|
| Vacuum pump | 10 $m^3/h$ |
| Achievable final pressure approx. | 2 mbar |

| **Noise exposure at the workplace** | |
|---|---|
| Based on | DIN EN ISO 3744/3746 and 11204 |
| Measuring device | High-precision sound level meter DIN 45633 IEC 651, class 1 |
| Condition of the machine | New condition with optimum settings at the time of delivery |
| A-weighted emission sound-pressure level at the workplace $L_{pA}$ (DIN ISO 11204, accuracy class 3) | 59 dB |
| A-weighted sound-pressure level $L_{wA}$ (enveloping surface method in accordance with: DIN EN ISO 3746, accuracy class 3) | 76 dB |

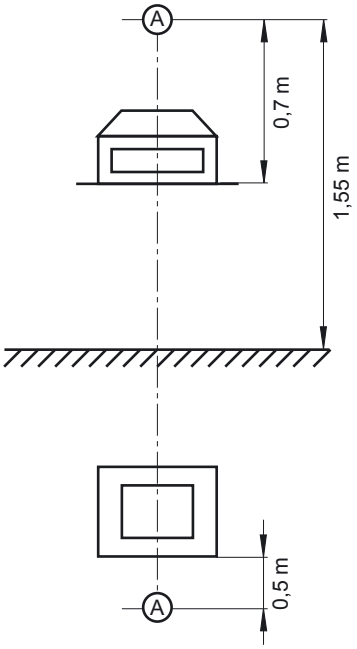



Fig. 10: Noise exposure measuring point

**Info**
The readings of the noise data have been adjusted to take extraneous and ambient noises into account.
Higher readings may be produced as a result of the following:

- Highly sound-reflecting rooms.
- Modified settings.
- Wear.

## 2.2 Design of the machine

### 2.2.1 Front view

Fig. 11: Front view

**1** Chamber lid
**2** Counter-pressure bar
**3** Chamber lid gasket
**4** Chamber
**5** Inert gas nozzle (Optional)
**6** Sealing bar
**7** Locking for lid
**8** Control terminal

### 2.2.2 Rear view

Fig. 12: Rear view

**1** Power supply connection

**2** (Optional) Inert gas connection

**3** Oil sight glass

**4** Screw plug of the drain opening

## 2.3 Control terminal

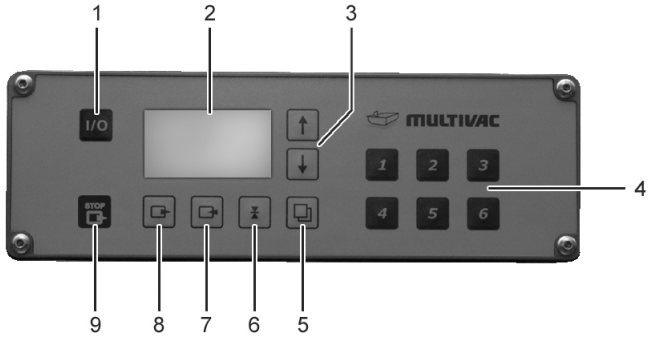



Fig. 13: Control terminal

**1** <Control On/Off> key
**2** Display
**3** Keys <Arrow key>
**4** Keys <1> to <6>
**5** <Function selection> key
**6** <Sealing> key
**7** <Gas flushing> key
**8** <Evacuation> key
**9** <Stop> key.

| | |
|---|---|
| <Control On/Off> | • Switch the machine on and off. |
| Display | • Display process data.<br>• Show menus.<br>• Show parameters and functions.<br>• Graphic support.<br>• Display diagnostic messages. |
| <Arrow key> | • Increase values.<br>• Navigation within menus. |
| <Arrow key> | • Decrease values.<br>• Navigation within menus. |
| Keys <1> to <6> | • Load and save recipes.<br>• Enter password. |
| <Function selection> | • Call up additional recipes.<br>• Scroll to previous screen. |

| | |
|---|---|
| <Sealing> key | • Press and hold down: Call up "Sealing" menu.<br>• Press briefly: Call up values for sealing. |
| <Gas flushing> key | • Press and hold down: Call up "Gas flushing" menu.<br>• Press briefly: Call up values for gas flushing. |
| <Evacuation> key | • Press and hold down: Call up "Evacuation" menu.<br>• Press briefly: Call up values for evaluation. |
| <Stop> key. | • Skip current machine process and proceed with the next process.<br>– Press during evacuation procedure: Cancel evacuation procedure and continue with gas flushing procedure.<br>– Press during gas flushing procedure: Cancel gas flushing procedure and continue with sealing procedure.<br>– Press during sealing procedure: Cancel sealing procedure and ventilate the chamber.<br>• Acknowledge diagnostic message.<br>• Return from the menu to the status display. |

## 2.4 Display

The display shows various views with differing information according to the machine's phase of operation.

### 2.4.1 Startup display

The startup screen appears after switching on the machine.

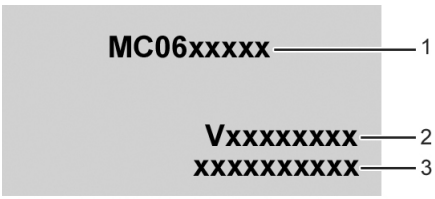



Fig. 14: Startup display

**1** Type designation of machine control

**2** Software version

**3** Configuration code

### 2.4.2 Status display

**Process data status display**

The process data status display shows information on the last packaging procedure.

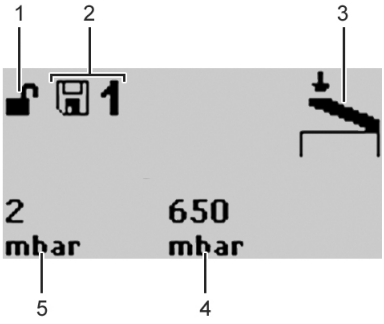



Fig. 15: Process data status display

**1** Current access right (lock closed = user; lock open = creator)

**2** Currently loaded recipe

**3** Chamber lid symbol, machine is ready.

**4** Gas flushing pressure

**5** Evacuation pressure

**Process sequence status display**

The process sequence status display shows the progress of a currently running process. During a packaging procedure process the corresponding symbol flashes on the display. If time runs out during a process, then a clock with the remaining time will flash in place of the symbol.

Fig. 16: Evacuation status display (047)

Fig. 17: Gas flushing status display (049)

Fig. 18: Sealing status display (050)

### 2.4.3 Function display

Depending on the access rights, the function display will offer the following options:

- View values.
- Enter values.
- Switch functions on and off.

Example of a function display with values:

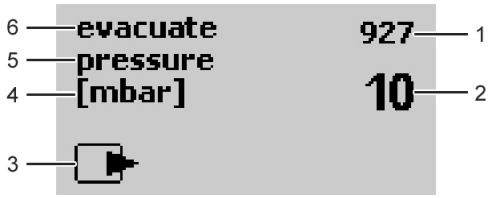



Fig. 19: Function display with value (052)

**1** Actual value

**2** Setting

**3** Symbol of function (e.g. evacuation)

**4** Measurement

**5** Selected parameter

**6** Selected function

Example of a function display for switching a function on and off:

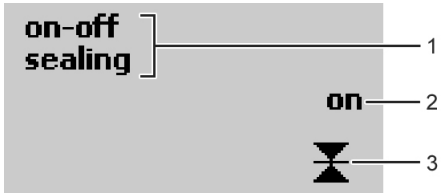



Fig. 20: Function display on/off (013)

**1** Selected function

**2** Switch status

**3** Symbol of function (e.g. sealing)

### 2.4.4 Diagnostic display

Fig. 21: Diagnostic display

**1** Diagnostic number

**2** Type of error acknowledgement

**3** Error text (in ticker)

Eliminate the malfunction, see Section 8 "TROUBLESHOOTING".

### 2.4.5 Access rights

To avoid incorrect operation, the following access rights are assigned.

| Touch the | Explanation |
|---|---|
| Operator | Not password protected.<br>The operator may enter settings that are required to operate the machine (e.g. Language choice).<br>The operator cannot modify values. |
| Creator | Password protected.<br>The creator can modify values and switch statuses.<br>Only a limited number of settings in the service menu are possible (e.g. vacuum test). |
| Service | Unrestricted authorisation. |
| Super-PIN | • Reset password for access authorisation *Creator* to factory setting.<br>• Reset machine control. |

## 2.5 Menu tree

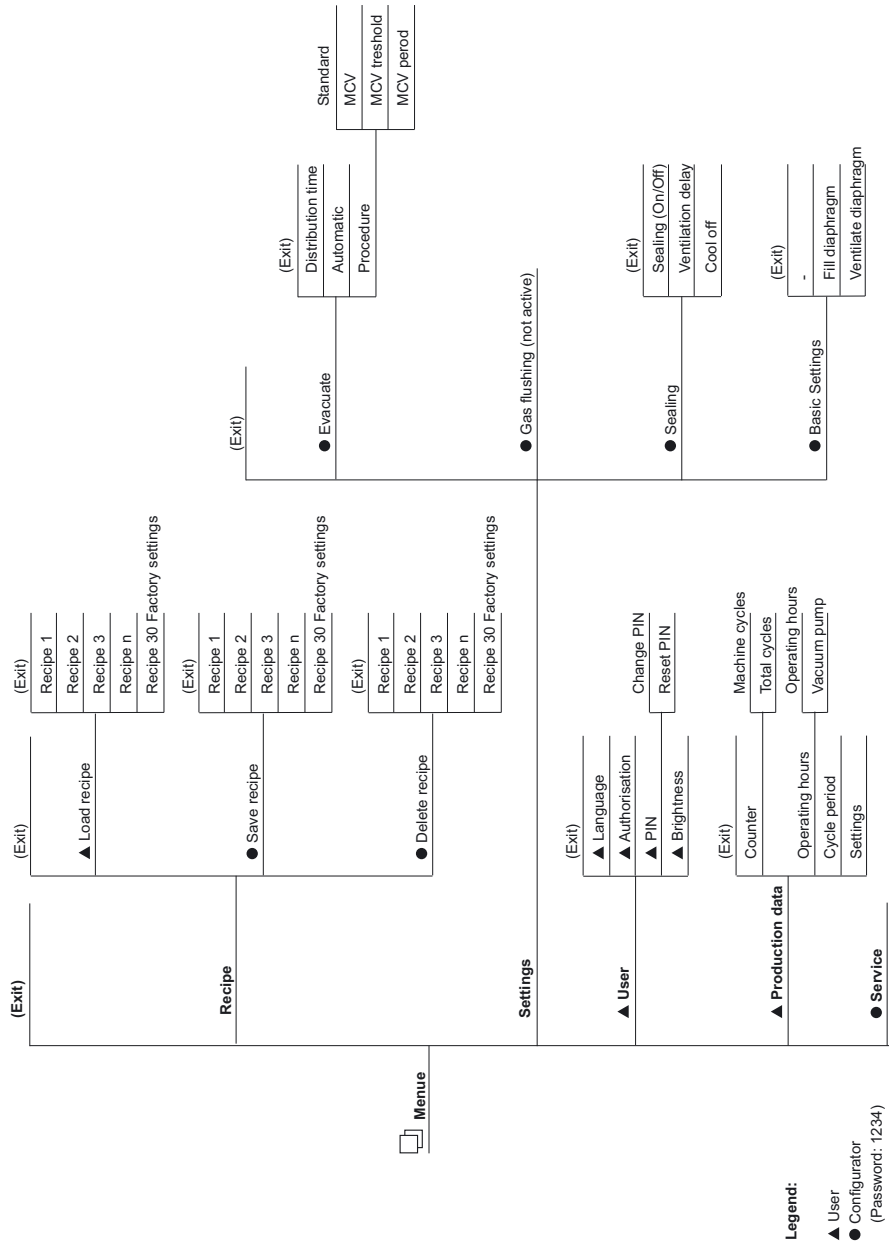



Fig. 22: Menu tree

## 2.6 Process sequence

The film pouch is filled and laid in the chamber. When the chamber is closed, the following procedures run automatically:

| | |
|---|---|
| evacuate | Evacuate chamber and film pouch. |
| Gas flushing option | Feed in inert gas. |
| Sealing | Seal film pouch. |

Depending on the settings on the machine, the processes *evacuation* and *gas flushing* repeat.

## 2.7 Packaging process

The following processes are available for packing products.

| Processes | Example of use |
|---|---|
| Standard | Technical products or products without special requirements. |
| MCV | Testing airtightness of packs or for drying products. |

## 2.8 Preset recipes

Recipes 1 to 6 are preset at the factory. The settings depend on the machine equipment.

**Info**
Recipes 1 to 6 contain presettings which have to be adjusted to the individual cases.

| Recipe | Example of use | Evacuation pressure | Automatic sensitivity | Gas flushing pressure | Sealing time | MHP |
|---|---|---|---|---|---|---|
| No. 1 | For dry products without gas flushing. | Automatic | 4 | Off | 1.8 s | Off |
| No. 2 | For moist products without gas flushing. | Automatic | 10 | Off | 1.8 s | Off |
| No. 3 | For dry products with little gas flushing. | Automatic | 4 | 100 mbar to 150 mbar | 1.8 s | Off |

| Recipe | Example of use | Evacuation pressure | Automatic sensitivity | Gas flushing pressure | Sealing time | MHP |
|---|---|---|---|---|---|---|
| No. 4 | For dry products with medium gas flushing. | Automatic | 4 | 250 mbar | 1.8 s | Off |
| No. 5 | For dry products with strong gas flushing. | Automatic | 4 | 500 mbar | 1.8 s | Off |
| No. 6 | For products with a big air pocket. | 12 mbar | 10 | Off | 1.8 s | Evacuation time: 2 s<br>Evacuation pause: 4 s |
| No. 30 | Factory settings | 10 mbar | 6 | Off | 1.3 s | Evacuation time: 2 s<br>Evacuation pause: 2 s |

# 3 Start-up

## 3.1 Initial start-up

### 3.1.1 Setting up the machine

- ➢ Prepare a firm, level site for the machine.
- ➢ Ensure there is adequate access to the connections at the desired location.
- ➢ Observe the technical specifications.

**DANGER**

**Danger of explosion!**
Operating the machine in a potentially explosive atmosphere can result in explosion due to hot machine parts.
Explosions can cause serious injuries or even death.

- ➢ Do NOT use the machine in rooms that are exposed to explosion hazards.

**NOTICE**

**Danger of equipment damage!**
At an inclination of more than 15°, the oil in the vacuum pump shifts.
The air de-oiling elements will get wet from the oil and be rendered useless. This will damage the vacuum pump.

- ➢ Transport and set the machine down as horizontally as possible.
- ➢ Do NOT tilt the machine.

- ➢ Transport the machine to the desired location, see Section 9.2.1 "TRANSPORTING THE MACHINE".
- ➢ Set up the machine on a firm, level base.

### 3.1.2 Adding oil to the vacuum pump

- ➢ Fill oil into the vacuum pump, see Section 7.5.2 "ADDING OIL TO THE VACUUM PUMP".

## 3.2 Connecting the power supply

**NOTICE**

**Danger of equipment damage!**
If the voltage of the machine does not match that of the mains, the machine will be overloaded.
This can damage the vacuum pump.

- Connect the machine to the mains electricity only if the voltages are identical.

- Check the mains voltage on the type plate and compare it with the voltage of the mains electricity.
- If the values match, connect the machine to the mains electricity.

## 3.3 Connecting inert gas

**DANGER**

**Danger of explosion!**
Gas mixtures with oxygen proportions over 21% are explosive.
A gas mixture with an oxygen proportion over 21 % can cause an explosion and fire if it comes in contact with heat, oil or grease.

- Do NOT use a gas mixture with an oxygen proportion of over 21%.

**DANGER**

**Risk of death!**
During the packing process, inert gases are released.
Inhaling inert gas can impair your breathing. Over a longer period of time, this can be fatal.

- A surface area of at least 40 square meters per machine must be made available.
- Air the rooms sufficiently and avoid any accumulation of gas.
- Observe the maximum input pressure, see "Technical specifications".
- Cut off the gas supply at the end of work.
- Adhere to the safety regulations in effect in the country where the machine is used.

**Info**
Observe the minimum and maximum permitted input pressure, see “Technical specifications”.

- Attach a stop valve to the gas supply on the operating side.
- Attach the gas hose to the inert gas connection of the machine.
- Fasten the hose with hose clamps.

- Open the stop valve for the gas supply.
- Set the input pressure; see the section technical specifications.

# 4 Operation

## 4.1 Switching on the machine

➢ Press the <Control On/Off> key.
  – The machine control performs a self-test.
  – The software version of the machine control briefly appears in the display.
  – The status display appears.
  – The machine is ready for operation.

## 4.2 Switching off the machine

➢ Press the <Control On/Off> key.
  – The screen for performing the pump protection function appears.

➢ If necessary, perform the pump protection function.

  ➢ Close and press down the chamber lid.
    – The vacuum pump runs for a set time.
    – A counter counts to zero.
    – The display goes dark.
    – The chamber lid opens automatically if it is not locked.

  ➢ To cancel the pump protection function, press the <Control On/Off> key again.
    – The display goes dark.

**Info**
The display goes dark automatically after 10 s without input or without closing the chamber lid.

➢ Close chamber lid and lock it in place.

➢ Close stop valve for the gas supply, if present.

## 4.3 Packing products

➢ Switch on the machine.

➢ Load the desired recipe.

  ➢ For the first test packs, use a preset recipe, see Section 2.8 "PRESET RECIPES" and see Section 4.8.2 "LOAD FACTORY SETTINGS ".

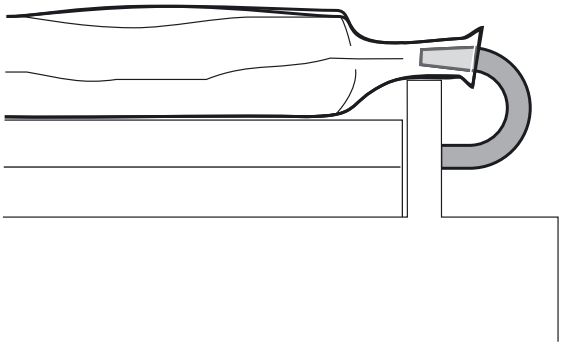
**WARNING**

**Health hazard!**
Insufficient or sporadic cleaning can promote the growth of micro-organisms which can contaminate the product.
This can pose serious health hazards for consumers.

- Should a machine part accidentally come into contact with the operating elements, disinfect your hands immediately.
- Do NOT lay the product on the machine.
- Observe the company cleaning guidelines.
- Follow instructions in the chapter "Cleaning".

- Fill the film pouch.

- Insert the film pouch so that the pouch neck protrudes 2 to 3 cm over the sealing bar and is positioned at one-half the pouch height.
  - If necessary, use spacer plates.
  - Use the diagonal insert for packaging liquids, see Section 5.1 "INSERT AND REMOVE THE DIAGONAL INSERT". Insert the film pouch in a way, that the liquid can not leak out.



- Gas flushing option: Pull the pouch opening over the inert gas nozzles so that the inert gas flows into the film pouch.

**NOTICE** **Danger of equipment damage!**
Penetration by liquids will damage the vacuum pump.
Damage can cause the machine to malfunction, which in turn results in faulty packs.

- Immediately cancel the evacuation procedure when liquids are suctioned.

- Close and press down the chamber lid.
  - The packaging procedures in the machine run automatically.
  - The chamber lid opens automatically if it is not locked.

➢ Remove the finished pack.

➢ Check the pack.

**Info**
Visually inspect the packs on a regular basis while the machine is running. Depending on the product and pack, other, more complex testing procedures may be required. This is the responsibility of the operating company, see Section 1.7.6 "CHECKING THE PACKS".

➢ If necessary, adapt the settings to the product.
  ➢ Enter all required times and values.

➢ Save recipe, see Section 4.8.3 "SAVE RECIPE ".

## 4.4 Opening and closing menus

### 4.4.1 Calling up menus

➢ Press the <function selection> key.
  – The "main menu" appears.

➢ Select the desired menu with the <arrow> keys.

➢ Press the <function selection> key.
  – The desired menu appears.

➢ Select the desired submenu with the <arrow> keys.

➢ Press the <function selection> key.
  – The desired submenu appears.

### 4.4.2 Quitting menus

➢ Using the <arrow> keys, select the respective menu heading.
  – The text of the menu heading changes and becomes the (menu) function *quit*.

➢ Press the <function selection> key.
  – The menu is exited and the system changes to the next highest display level.

## 4.5 Modifying values

➢ Call up the desired menu.

➢ Using the <arrow> keys, select the desired parameter.

➢ Press the <function selection> key.
  – The display for the selected parameter appears.

➢ Set the value with the <arrow> keys.
  – The set value is adopted.

➢ To exit display, press the <function selection> key.

## 4.6 Selecting and resetting access rights

### 4.6.1 Selecting access authorisations

➢ Call up "User" menu.

➢ Select *Authorisation*.

➢ Enter the password with the keys <1> to <6>.
  – The corresponding access authorisation appears in the status display.

➢ If the selected access authorisation is no longer needed, reset the access to *operator*, see Section 4.6.2 "RESETTING THE ACCESS AUTHORISATION TO OPERATOR (BLOCKING ACCESS)".

### 4.6.2 Resetting the access authorisation to operator (blocking access)

➢ Call up "User" menu.

➢ Select *Authorisation*.

➢ Enter the password of the current access authorisation with the keys <1> to <6>.
  – The *Operator* access authorisation appears in the status display.

### 4.6.3 Change password for authorisation access creator

➢ Call up "PIN" menu.

➢ Select *Change PIN*.

➢ Enter old password with keys <1> to <6>.

➢ Enter new password with keys <1> to<6>.

➢ Confirm the new password again.
  – The password has been changed.
  – The status display appears.

### 4.6.4 To reset authorisation access creator

➢ Call up "PIN" menu.

➢ Select *Reset PIN*.

➢ Enter Super-PIN, see supplementary sheet "Super-PIN".
  – The reset password for the authorisation access *Creator* appears.
  – The status display appears.

## 4.7 Language selection

### 4.7.1 Selecting the language via menu

➢ Call up "User" menu.

➢ Select *Language*.

➢ Using the <arrow> keys, select the desired language.

➢ Press the <Function selection> key.
  – The language is activated.

### 4.7.2 Selecting the language via the shortcut key

➢ Switch off the display with the <control on/off> key.

➢ Switch on the display with the <control on/off> key.

- ➢ While the startup display is shown, press the <function selection> key.
  – The "language selection" display appears.
- ➢ Using the <arrow> keys, select the desired language.
- ➢ Press the <Function selection> key.
  – The language is activated.

## 4.8 Working with recipes

### 4.8.1 Load recipe

**Info**
If no recipe is saved, the message “recipe missing” appears. The last settings remain active.

**Load using keys <1> to <6>**

- ➢ Press the desired key briefly <1> to <6>.
  – The selected recipe is loaded.

**Loading through the “load recipe” menu**

- ➢ Call up "Load recipe" menu.
- ➢ Select the desired recipe with the <arrow> keys.
- ➢ Press the <Function selection> key.
  – The selected recipe is loaded.

### 4.8.2 Load factory settings

**Info**
Factory settings cannot be overwritten or deleted.

- ➢ Call up "Recipe loading" menu.
- ➢ Select recipe no. 30 with the <arrow> keys.
- ➢ Press the <Function selection> key.
  – The factory settings are loaded.

### 4.8.3 Save recipe

**Info**
When selecting an already assigned recipe number, the recipe stored under this number is directly overwritten.

**Saving via keys <1> to <6>**

- ➢ Press and hold down desired key <1> to <6>.
  - – The message "Recipe saved" appears.
  - – The current values are stored in the selected recipe.

**Saving via the “save recipe” menu**

- ➢ Call up "Recipe, saving" menu.
- ➢ Using the <arrow> keys, select the desired memory location.
- ➢ Press the <Function selection> key.
  - – The current values are stored in the selected recipe.

### 4.8.4 Delete recipe

**Info**
If the currently loaded recipe is deleted, a new recipe must be loaded.

- ➢ Call up "Recipe, deleting" menu.
- ➢ Select the recipe to be deleted with the <arrow> keys.
- ➢ Press the <Function selection> key.
  - – The message “completed” appears.
  - – The recipe has been deleted.

## 4.9 Select and set process

### 4.9.1 Set standard process

- ➢ Press <Evacuation> key briefly and enter value for *Evacuation pressure*.
  - ➢ For automatic evacuation, decrease the value until *Automatic* appears.
    - – The machine controls the evacuation process automatically.
- ➢ Press <Evacuation> key briefly again and set value for *Post-evacuation time*.

- Call up the "evacuation" menu.
  - Set *Distribution time*.
  - Set *Automatic*.
  - Select *Standard* process.
- Call up the "gas flushing" menu (Optional).
  - Switch on *On/off gas flushing*.
  - Set *Distribution time*.
  - Set *Rinse time*.
- Press <Gas flushing> key briefly and set value for *Gas flushing pressure*.

### 4.9.2 To set MCV process

- Press <Evacuation> key briefly and set value for *Evacuation pressure*.
- Press <Evacuation> key briefly again and set value for *Post-evacuation time*.
- Call up the "evacuation" menu.
  - Set *Distribution time*.
  - Set *Automatic*.
  - Select *MCV* process.
  - Set *MCV threshold*.
  - Set *MCV duration*.

## 4.10 Setting the sealing

- Call up the "sealing" menu.
  - Switch on *On/off sealing*.
  - Set *Delayed ventilation*.
  - Set *Cooling down*.
- Press <Sealing> key briefly and set value for *Sealing time*.

## 4.11 Entering basic settings

- Call up the "basic settings" menu.
  - Set *Fill diaphragm*.
  - Set *Ventilate diaphragm*.

## 4.12 Modifying and resetting machine cycles

➢ Call up the "production data" menu.

➢ Call up "Counter" menu.

➢ Call up *machine cycles*.

➢ Set the value with the <arrow> keys.
– The set value is adopted.

## 4.13 Display production data

### 4.13.1 Display total cycles of the machine

➢ Call up "Counter" menu.

➢ Select *Total cycles*.

### 4.13.2 Display hours of operation

**Display machine's hours of operation**

➢ Call up "Hours of operation" menu.

➢ *Select* Hours of operation.

**Display vacuum pump's hours of operation**

➢ Call up "Hours of operation" menu.

➢ Select *Vacuum pump*.

### 4.13.3 Display cycle time

➢ Call up the "production data" menu.

➢ Select *Cycle time*.

### 4.13.4 Show settings

➢ To view the settings of recipes 7 through 30, load the desired recipe via the menu, see Section 4.8.1 "LOAD RECIPE ".

➢ Call up the "production data" menu.

➢ Select *Settings* .
– The settings of the loaded recipe appear in a list.

**Info**
The settings of recipes 1 through 6 can be speed dialed from the list. To do so, load the respective recipe with the keys <1> through <6>.

## 4.14 Setting the brightness of the display

➢ Call up "User" menu.

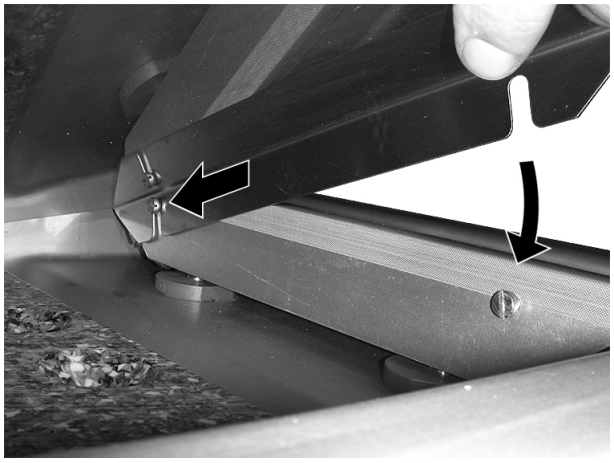
➢ Select *brightness*.

➢ Using the <arrow> keys set the desired brightness.

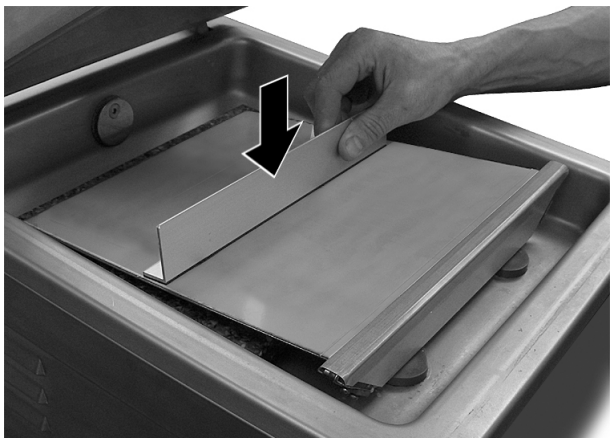
# 5 Adjustment work and setup

## 5.1 Insert and remove the diagonal insert

➢ If necessary, use diagonal inserts for the desired inclination.



➢ Hook the diagonal insert on the screws of the sealing bar.



➢ Install the support bracket on the required position on the diagonal insert.

➢ If the diagonal insert is no longer needed, remove it, along with the support bracket, from the chamber.

# 6 Cleaning

**Info**
Observe the safety instructions, see Section 1 "SAFETY".
Clean the machine after maintenance work and repairs and disinfect if necessary.

## 6.1 Notes on cleaning

### 6.1.1 Rules of conduct

The objective of the cleaning work is to avoid hygienic risks. If the cleaning is insufficient or not performed properly, this may result in contamination of the products and thus to health hazards for end consumers. Assign only instructed and qualified personnel. Information on qualifications and training can be obtained from the service department.
The ability to handle materials effectively and efficiently depends on:

- Using the proper dosage of care products.
- Observing the contact time of the care products.
- Proper temperature of the mixing water.

Data sheets for the care products can be obtained from their manufacturers. The manufacturers also provide information on the maximum permissible dosages for food processing.

### 6.1.2 Creating a company cleaning directive

Specify the following points:

- Required cleaning intervals.
- Care products to be used. Care products, refer to "Care products table".
- Using the proper dosage of care products.
- Persons in charge of cleaning.
- First aid measures.

### 6.1.3 Measures for ensuring a long service life

**NOTICE** **Danger of equipment damage!**
Highly acidic or alkaline cleansers that contain chlorine create strong vapours.
These vapours cause corrosion.

- ➢ Do NOT use any care products that contain chlorine or are highly acidic or alkaline. Also, do NOT use such care products to clean the machine surroundings.
- ➢ Observe the specifications of the care product manufacturers.

**NOTICE** **Danger of equipment damage!**
Acidic cleansers are caustic.
These can cause plastics to become brittle and age prematurely.

➢ Do NOT shorten the cleaning intervals for acidic cleaning and disinfection.

Regular and correct maintenance prolongs the life of the unit. The best protection against harmful influences is to clean and disinfect the machine on a regular basis. The longer product residue and other aggressive deposits remain on the unit, the more harmful their corrosive effects will be.
If used incorrectly, care products can damage components made of rubber or plastic. Before applying care products, please take time to read the notes and warnings provided by the manufacturer.

### 6.1.4 Parameters for pre-rinsing and after-rinsing water

- Low pressure of max. 4 bar to 6 bar (58 psi to 88 psi).
- Do not rinse with steam jets or high-pressure cleaners.
- Fan nozzle: 5 ° to 15 ° inclination, approx. 3/16 " nozzle opening.
- Temperature: max. 60 °C (140 °F).
- Quality of after-rinsing water: drinking water quality.

### 6.1.5 Handling cleansers

**WARNING** **Chemical burn hazard!**
Acidic cleansers are caustic. Caustic effects are not noticed immediately.
Contact with the skin can cause burns.

➢ Wear the prescribed personal protective gear when handling cleansers.

➢ Observe the manufacturer's instructions.

- For type of cleander refer to the "Care products table".
- The quantity of cleanser is not the decisive factor for successful cleaning.
  – Applying amounts in excess of the proper dosage does not improve or accelerate cleaning efficiency, but only hinders the required rinsing off of the cleanser.
- Dried cleanser residues make cleaning more difficult and prolonged.
  – Even smallest residues can inhibit the effect of the disinfection.
  – Check by measuring the pH factor of the re-rinse water.
- Regular checks of cleaning (i.e. by contact tests) reduces the risk of product contamination.

- Insufficient cleaning cannot be compensated by duplication of the concentration of the disinfection agents.

### 6.1.6 Use with disinfectant

**WARNING**

**Fire hazard!**
Alcohol-based disinfectants are highly flammable.
Fire, naked light or smoking ignites the disinfectant and can thus cause fires.

- ➢ When disinfecting the machine, flames or naked lights are prohibited.
- ➢ Smoking is prohibited.
- ➢ Observe the instructions of the disinfectant manufacturer.

**WARNING**

**Health hazard!**
Incorrect use of disinfectant can contaminate the product with chemicals or decrease the effectiveness of disinfection.
This can pose serious health hazards for consumers.

- ➢ Follow the instructions of the disinfectant manufacturer.
- ➢ Only rinse after disinfection if required by disinfectant manufacturer.
- ➢ Observe regional hygiene regulations.
- ➢ Create a company cleaning directive.

- For type of disinfectant refer to the "Care products table".
  - – For water-sensitive components only use alcohol-based disinfectant.
  - – For all other components use for example QAV based disinfectant (quartenary ammonium compound).

### 6.1.7 Corrosion protection and lubrication

**WARNING**

**Health hazard!**
Excess lubricants can accumulate at lubricating points.
Excess grease has no lubricating function; however, it can breed micro-organisms and contaminate the product.

- ➢ Check the lubricating points regularly for excess lubricants.
- ➢ Remove any excess lubricants.

**NOTICE** **Danger of equipment damage!**
Residues of cleansers and disinfectants produce corrosion.
Corrosion can destroy the machine.

➢ After every cleaning, including cleaning of the surroundings (floor, adjacent machines, etc.), thoroughly rinse with water of drinking water quality or clean by hand.

- Kind of anti-corrosion agent, refer to "Care products table".
- Only use H1 or FDA-approved lubricants and anti-corrosion agents.
- Checking the microbiological stability of the anti-corrosion agent and lubricants regularly helps reduce the risk of product contamination.

### 6.1.8 Cleaning devices

**WARNING** **Health hazard!**
The cleaning devices will spread germs if they are not cleaned often enough.
This can cause cross contamination, which will damage the product.

➢ Use only brushes and brooms that have plastic bristles.

➢ Clean the cleaning equipment daily and apply disinfectant afterwards.

## 6.2 Cleaning the machine

**Info**

- The recommended daily cleaning tasks recommended here must be supplemented by the intensive cleaning procedure according to the degree of dirt.
- Cleaning personnel must be instructed for the cleaning work by the operating company.
- The sequence of the described tasks is to be exactly followed.
- For all cleaning work, follow the safety instructions.

**WARNING** **Injury hazard!**
Wet and greasy floors are slippery.
Slipping on wet or greasy floors can lead to serious injuries.

➢ Wear personal protective equipment.

**NOTICE** **Danger of equipment damage!**
The teflon tape of the sealing bar is very sensitive.
Improper cleaning can damage the teflon tape.

- ➢ Clean the teflon tape only with a soft cloth.
- ➢ Do NOT scratch the teflon tape.

**NOTICE** **Danger of equipment damage!**
Penetration by liquids will damage the vacuum pump.
Damage can cause the machine to malfunction, which in turn results in faulty packs.

- ➢ Do NOT spray directly on the covers of the suction openings in the chamber.

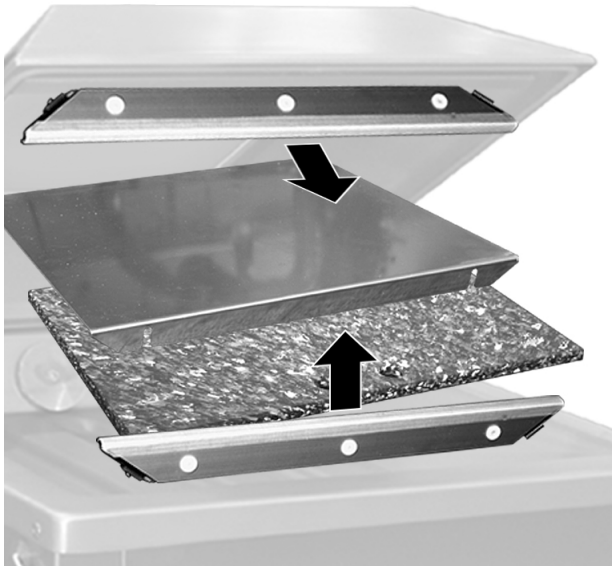
### 6.2.1 Daily cleaning

**Info**

- In the following, optional equipment versions are also described. Only perform steps that correspond to the version of the machine.
- The sequence of the described tasks is to be followed exactly.
- Always clean the machine from top to bottom.
- For all cleaning work, follow the safety instructions, see Section 6.1 "NOTES ON CLEANING" and see Section 6.2 "CLEANING THE MACHINE".
- The illustrations are examples.

**Preparing for daily cleaning**

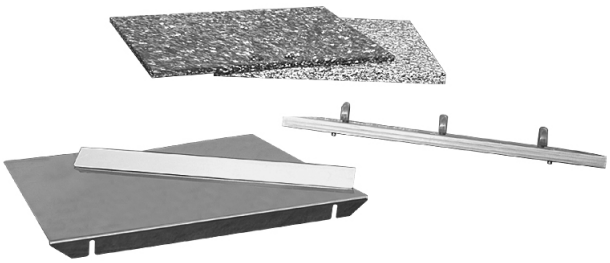
- ➢ Remove all products from the machine.
- ➢ Switch off the machine.
- ➢ Disconnect the machine from the mains electricity.
- ➢ Cover the mains plugs with waterproof plastic bags.
- ➢ Close the stop valve for the gas supply, if part of the machine.
- ➢ Let the sealing bar cool down.
- ➢ Store empty, new film pouches outside the room in a clean, dry place during the cleaning procedure.
- ➢ Remove all waste (e.g. product scraps, film trim) on or around the machine.



- Remove the following components:
  - Diagonal insert with support bracket.
  - Spacer plates.
  - Sealing bar.
  - Insertable counter-pressure bar.

**Cleaning and disinfecting dismantled components**

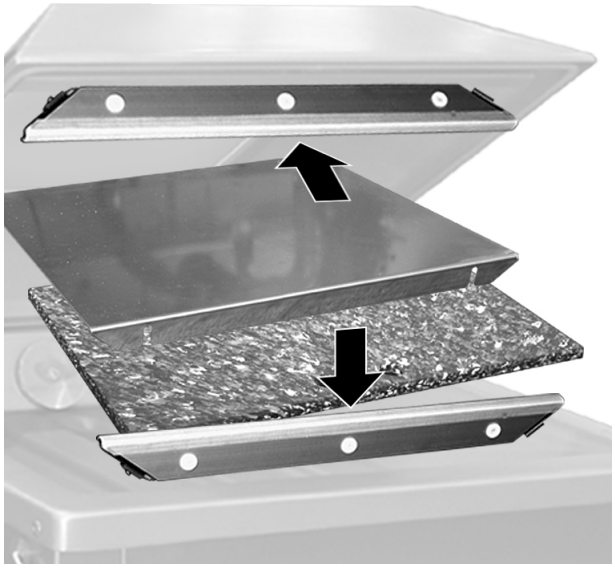
- Place removed components in a separate room.



- Clean dismantled components manually with cleaning solution.
  - Thoroughly clean the inert gas nozzles.
- Wait until the contact time has elapsed (see instructions of cleanser manufacturer).
- Wipe with new cloth and drinking quality water.
- Disinfect components with alcohol-based disinfectant:
  - Thoroughly disinfect the inert gas nozzles.

| | |
|---|---|
| | ➢ Wait until the contact time has elapsed (see instructions of disinfectant manufacturer). |
| **Clean the machine and the floor.** | |
| | ➢ Manually clean the entire machine, including the table, with cleaning solution. |
| | ➢ Wait until the contact time has elapsed (see instructions of cleanser manufacturer). |
| | ➢ Wipe with new cloth and drinking quality water. |
| | ➢ Close chamber lid and lock it in place. |
| | ➢ Clean the floor with a rubber wiper. |
| | ➢ Dispose of the dirty water and waste properly. |
| | ➢ Apply cleanser to the floor. |
| | ➢ Wait until the contact time has elapsed (see instructions of cleanser manufacturer). |
| | ➢ Rinse off the floor with drinking quality water. |
| | ➢ Inspect the entire machine and the floor for dirt and cleanser residues. |
| | ➢ If necessary, clean and wipe off again. |
| **Disinfect the machine and the floor.** | |
| | ➢ Use a hand-held spray lance to apply disinfectant to the floor. |
| | ➢ Wait until the contact time has elapsed (see instructions of disinfectant manufacturer). |
| | ➢ If necessary, rinse the floor with drinking quality water; see instructions of the disinfectant manufacturer. |
| | ➢ Open chamber lid. |
| | ➢ Disinfect entire machine, including table, with alcohol-based disinfectant. |
| **Complete cleaning** | |
| | ➢ Remove the plastic bag from the mains plug. |

- Dispose of plastic bags properly. For reasons of hygiene, never reuse bags



- Attach the following components:
  - Insertable counter-pressure bar.
  - Sealing bar.
  - Spacer plates.
  - Diagonal insert with support bracket.
- Leave the chamber lid open to dry.
- If present, open the stop valve for the gas supply.
- Connect the machine to the mains electricity.
- Disinfect the entire loading area with alcohol-based disinfectant.
- Clean cleaning implements (e.g. rubber wipers, brushes).
- Place cleaning implements in disinfectant solution-
- Unpack the film pouches and lay them ready.

### 6.2.2 Intensive cleaning

**Info**

- The intensive cleaning may only be performed by specially trained personnel. Information on qualifications and training can be obtained from our service personnel.
- The sequence of the described tasks is to be followed exactly.
- Always clean the machine from top to bottom.
- For all cleaning work, follow the safety instructions, see Section 6.1 "NOTES ON CLEANING" and see Section 6.2 "CLEANING THE MACHINE".
- The illustrations are examples.

**Preparing for intensive cleaning**

➢ Prepare for daily cleaning, see Section 6.2.1 "DAILY CLEANING".

**Performing intensive cleaning**

➢ Cleaning and disinfecting dismantled components, see Section 6.2.1 "DAILY CLEANING".

➢ Clean the machine and the floor, see Section 6.2.1 "DAILY CLEANING".

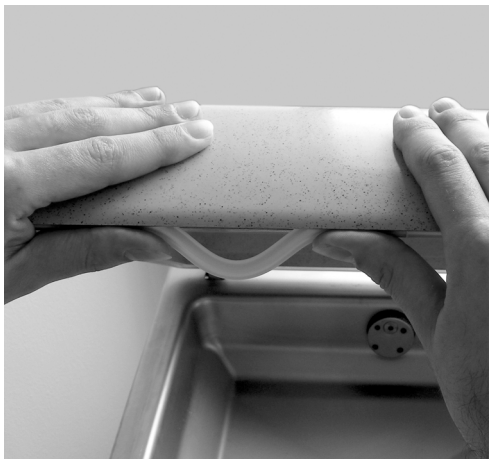
➢ Remove gasket from the groove.

➢ Manually clean groove in chamber lid with cleaning solution.

➢ Wait until the contact time has elapsed (see instructions of cleanser manufacturer).

➢ Wipe with new cloth and drinking quality water.

- ➢ Disinfect groove in chamber lid with alcohol-based disinfectant.
- ➢ Bring the chamber lid gasket into a separate room.
- ➢ Manually clean gasket with cleaning solution.
- ➢ Wait until the contact time has elapsed (see instructions of cleanser manufacturer).
- ➢ Wipe with new cloth and drinking quality water.
- ➢ Disinfect gasket with alcohol-based disinfectant.



- ➢ Insert gasket into the groove.
  - ➢ During insertion do not lengthen the gasket.
  - ➢ When inserting, press the pre-formed corners of the chamber lid gasket back down into the corners of the groove.

- ➢ Smooth out gasket.
- ➢ Disinfect the machine and the floor, see Section 6.2.1 "DAILY CLEANING".

➢ Complete cleaning, see Section 6.2.1 "DAILY CLEANING".

➢ Switch on the machine.

➢ Close and press down the chamber lid.
  – Machine draws in chamber lid.
  – Gasket is pressed into the groove.
  – Chamber lid opens.
  – The gasket should now form a locking fit in the groove of the chamber lid.

➢ Switch off the machine.

➢ Close the chamber lid manually and hold it closed.

➢ Check if the chamber lid gasket lies evenly on the edge of the housing in all places.
  ➢ If necessary,smooth out gasket again and disinfect.

## 6.3 Care products table

Recommended care products:

| Type | Manufacturer | Designation |
|---|---|---|
| Cleansers and disinfectants | Ecolab Europa | P3-steril |
| | Johnson Diversey | JD Delladet VS2 |
| | Finktec | FINK-FC 2062 |
| Cleansers, neutral | Ecolab Europa | P3-topax 12 |
| | Ecolab USA | Quorum Pink II |

| Type | Manufacturer | Designation |
|---|---|---|
| | Johnson Diversey | Shureclean VK10 |
| | | JD Shureclean Plus VK9 |
| | Finktec | FINK-Industrial rinsing agent 2 |
| Cleansers, alkaline | Ecolab Europa | P3-topactive LA |
| | Ecolab USA | TFC Pink |
| | Johnson Diversey | JD Ultraclean VK3 |
| | | Diverfoam SMS HD VF22 |
| Cleansers, acidic | Ecolab Europa | P3-topax 52 |
| | | P3-topax 56 |
| | Ecolab USA | Quorum Purple |
| | | Quorum Red |
| | Johnson Diversey | JD Acifoam VF10 |
| | Finktec | FINK aluminium cleanser |
| | | FT-43 SR |
| Disinfectants | Ecolab Europa | P3-topax 91 |
| | | P3-topax 99 |
| | Ecolab USA | Quorum Whisper |
| | | Quorum Clear |
| | Johnson Diversey | JD Divosan extra VT55 |
| | | JD Suredis VT1 |
| | Finktec | FINK- Antisept G |
| Disinfectants (alcohol-based) | Ecolab Europa | P3-alcodes |
| | Johnson Diversey | JD Divodes FG VT29 |
| | Finktec | FINK- Antisept E |
| Anti-corrosion agents | Esso | Primol 352 |
| | Castrol | Optimol F+D Fluid Spray |
| | Klüber Lubrication | Klüberfood NH1 K 32 |
| Stainless steel care products | Ecolab Europa | P3-proguard CP |

The recommended care products are foodstuff-compatible.
Buying source:

- Ecolab: www.ecolab.com
- Johnson Diversey: www.diverseylever.de

- Finktec: www.fink-service.com
- Esso: www.exxonmobil.com
- Castrol: www.castrol.com
- Klüber Lubrication: www.klueber.com

# 7 Maintenance

**Dangerous voltage!**
Switching off the machine does not rid it of electrical current.
Touching electrically charged parts can cause serious or even fatal injuries.
Before performing any cleaning or maintenance work:

- Disconnect the machine's power supply from the mains electricity.

**Info**
Observe the safety instructions, see Section 1 "SAFETY".
Clean the machine after maintenance work and repairs and disinfect if necessary.

## 7.1 Maintenance schedule

**As needed**

| | | Page | Completed |
|---|---|---|---|
| Entire machine | Wipe test | *60* | |
| Entire machine | Intensive cleaning | *61* | |

**Every 8 operating hours or daily**

| | | Page | Completed |
|---|---|---|---|
| Vacuum pump. | Perform the pump protection function. | *60* | |
| Entire machine | Visual inspection | *60* | |
| Entire machine | Alkaline cleaning and disinfection | *60* | |
| Chamber lid gasket | Visual inspection | *61* | |
| Sealing bar | Visual inspection | *61* | |
| Vacuum pump. | Checking oil level, refilling | *61* | |

**Every 50 operating hours or weekly**

| | | Page | Completed |
|---|---|---|---|
| Entire machine | Acidic cleaning and disinfection | *60* | |

| | | Page | Completed |
|---|---|---|---|
| Connections | Visual inspection | *61* | |
| Vacuum system | Test | *61* | |

**Every 1000 opearating hours or yearly**

| | | Page | Completed |
|---|---|---|---|
| Vacuum pump. | Oil change | *61* | |

## 7.2 Recommended maintenance

### 7.2.1 Vacuum pump. - Perform the pump protection function.

➢ Switch off the machine to perform the pump protection function, see Section 4.2 "SWITCHING OFF THE MACHINE".

### 7.2.2 Entire machine - Visual inspection

➢ Check the entire machine exterior for damage.

➢ Check that all warning signs are present.

➢ Check that all safety guards are mounted and intact.

### 7.2.3 Entire machine - Alkaline cleaning and disinfection

➢ Clean the machine, see Section 6 "CLEANING".

### 7.2.4 Entire machine - Wipe test

➢ Perform wipe tests to check the result of the cleaning and disinfection procedures.

See the company cleaning instructions and recommendations, see Section 6 "CLEANING".

### 7.2.5 Entire machine - Acidic cleaning and disinfection

➢ Clean the machine, see Section 6 "CLEANING".

### 7.2.6 Entire machine - Intensive cleaning

- Clean the machine, see Section 6 "CLEANING".

### 7.2.7 Chamber lid gasket - Visual inspection

- Check gasket for damage.
- Have the chamber lid gasket replaced by the service department if necessary.

### 7.2.8 Sealing bar - Visual inspection

- Check sealing bar for damage.
- If necessary, replace the sealing bar, see Section 7.4 "REPLACE THE SEALING BAR".

### 7.2.9 Connections - Visual inspection

- Disconnect the machine from the mains electricity.
- Check power cable for damage.
- If present, check that the line for inert gas is fitted tightly and undamaged.

### 7.2.10 Vacuum pump. - Checking oil level, refilling

- Disconnect the machine from the mains electricity.
- Check the oil level on the oil sight glass.
- If necessary, refill oil.
- If water is present in the oil, notify the service department.

### 7.2.11 Vacuum pump. - Oil change

- Change the oil in the vacuum pump, see Section 7.5 "CHANGE THE OIL IN THE VACUUM PUMP".

### 7.2.12 Vacuum system - Test

- Perform a vacuum test, see Section 7.3 "PERFORMING THE VACUUM TEST".

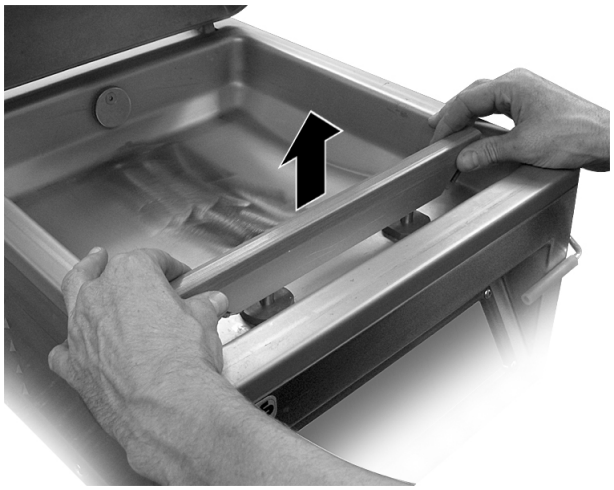
## 7.3 Performing the vacuum test

- ➢ Call up the "Service" menu.
- ➢ Call up the "test" menu.
- ➢ Select *Vacuum test*.
- ➢ Switch on the *vacuum test*.
- ➢ Return to the status display.
- ➢ Close and press down the chamber lid.
  - – The vacuum system is tested for airtightness.
  - – The processes in the machine run automatically.
  - – The corresponding diagnostic message appears.
  - – The chamber lid opens.
- ➢ Acknowledge the diagnostic message.
  - – The vacuum test is switched off.
- ➢ If the vacuum test is not successful, see the displayed diagnostic message to correct the malfunction, see Section 8 "TROUBLE-SHOOTING".

## 7.4 Replace the sealing bar

### 7.4.1 Remove the sealing bar

- ➢ Switch off the machine.
- ➢ Disconnect the machine from the mains electricity.
- ➢ Open chamber lid.
- ➢ Let the sealing bar cool down.

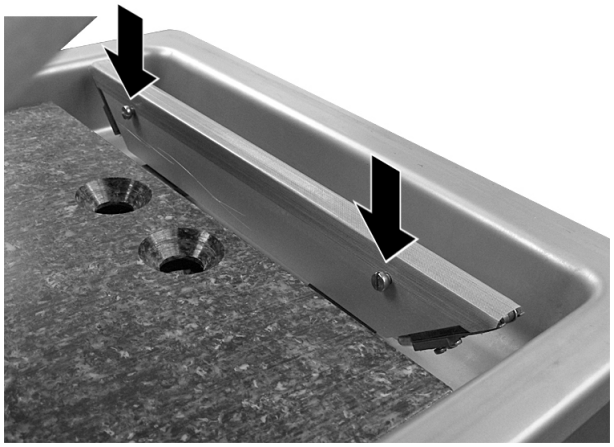


➢ Pull out the sealing bar.

### 7.4.2 Install the sealing bar

➢ Disconnect the machine from the mains electricity.

➢ Install the sealing bar on the carriers.



➢ Install the sealing bar in such a way that the screws on the sealing bar point to the middle of the chamber.

## 7.5 Change the oil in the vacuum pump

### 7.5.1 Drain oil

➢ Switch off the machine.

➢ Disconnect the machine from the mains electricity.

**WARNING**

**Burn hazard!**
The surface of the vacuum pump can reach temperatures of over 70 °C during operation.
Touching the vacuum pump can lead to burns.
Before performing any work on the vacuum pump:

➢ Wear personal protective equipment.

➢ Allow the vacuum pump to cool down.

➢ Hold a device to catch the oil under the drain opening (e.g. an empty bottle of oil).

➢ Unscrew the screw plug.

➢ Drain the oil completely.

➢ Check the sealing ring in the screw plug for damage and replace it if necessary.

➢ Insert the screw plug with the sealing ring in the drain opening and screw it tight.

➢ Dispose of old oil properly.

➢ Fill new oil into the vacuum pump, see Section 7.5.2 "ADDING OIL TO THE VACUUM PUMP".

### 7.5.2 Adding oil to the vacuum pump

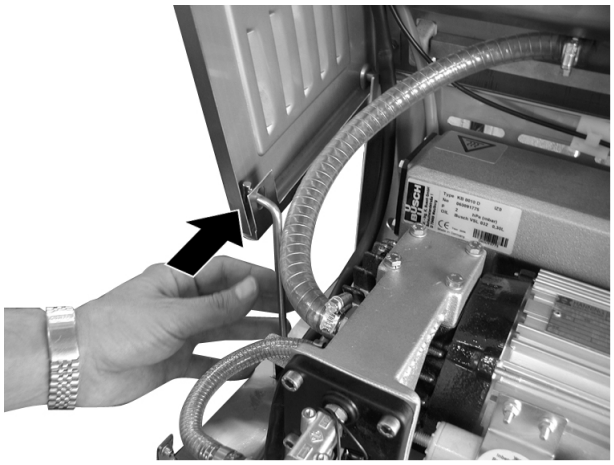
➢ Switch off the machine.

➢ Disconnect the machine from the mains electricity.

➢ Empty chamber completely.

➢ Unscrew the lateral screws.

➢ Open housing.



WARNING

**Danger of crushing!**
The housing is heavy.
Reaching under the opened housing can cause crushing injuries.

- Always support the opened housing.

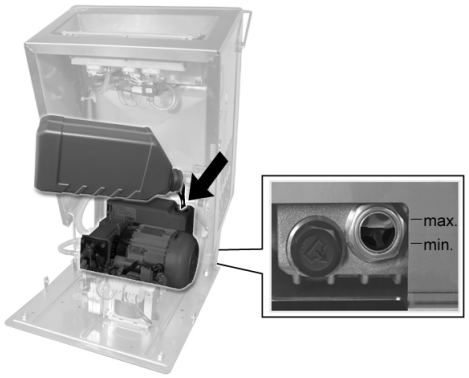
- Support housing with supporting bar.

WARNING

**Burn hazard!**
The surface of the vacuum pump can reach temperatures of over 70 °C during operation.
Touching the vacuum pump can lead to burns.
Before performing any work on the vacuum pump:

- Wear personal protective equipment.

- Allow the vacuum pump to cool down.




- Fill the vacuum pump with the oil.

- Check oil level on the oil sight glass:
  - The oil level should be between the MIN and MAX marks.
  - If oil level is under the MIN mark, add oil.

- ➢ Hold housing and take supporting rod out of the holder.
- ➢ Close housing.
- ➢ Tighten lateral screws.
- ➢ Connect the machine to the mains electricity.
- ➢ Switch on the machine.
- ➢ Check the oil level after a couple of machine cycles.

# 8 Troubleshooting

WARNING

**Injury hazard!**
Ignorance of proper machine handling is very dangerous.
Improper handling can lead to serious injuries.
For all service operations and repair work:

- Make sure you observe the safety instructions and accident prevention regulations.
- Disconnect the unit's power supply from the mains.
- Only qualified electricians are permitted to work on the electrical equipment.
- Service operations and repair work should be carried out by authorised specialists only.

## 8.1 Malfunctions with diagnostic message

| Symptom | Cause | Solution |
|---|---|---|
| 67 | • Vacuum pump does not switch off. | • Notify the service department. |
| | • Ventilation valve does not open. | • Notify the service department. |
| 68 | • No gas available or near end. | • Check. |
| | • Stop valve for the gas supply closed. | • Open the stop valve for the gas supply. |
| | • Hose kinked. | • Check. |
| | • The target value for the gas pressure is set such that it cannot be reached (for "pressure-controlled gas flushing"). | • Check the setting. |
| | • Pressure transducer is incorrectly calibrated. | • Notify the service department. |
| | • Pressure transducer is defective. | • Notify the service department. |
| | • Gas valve does not open. | • Notify the service department. |
| 69 | • Target value for the vacuum is set so low that it cannot be reached. | • Check the setting. |

| Symptom | Cause | Solution |
|---|---|---|
| | • Vacuum line between chamber and pressure transducer clogged, disconnected or leaky. | • Check, replace if necessary. |
| | • Vacuum hose loose, leaky or clogged. | • Check, replace if necessary. |
| | • Chamber lid gasket not airtight. | • Notify the service department. |
| | • Pressure transducer is defective. | • Notify the service department. |
| | • Vacuum pump was not triggered, overload current relay has signalled or vacuum pump is defective. | • Notify the service department. |
| | • Vacuum pump leaky. | • Notify the service department. |
| | • Filter in pneumatic line to the sensor is dirty and clogged. | • Notify the service department. |
| 80 | • Leak in hose connections. | • Check, replace if necessary. |
| | • Leak in vacuum hose. | • Check, replace if necessary. |
| | • Leak in pressure transducer and associated measuring line. | • Notify the service department. |
| 81 | • Sealing diaphragm leaks. | • Notify the service department. |

## 8.2 Malfunctions without diagnostic message

| Symptom | Cause | Solution |
|---|---|---|
| Machine does not run. | • Machine is switched off. | • Switch on the machine. |
| | • Power cord is unplugged. | • Plug in the power cord. |
| Chamber lid does not remain closed despite pump running. | • Chamber lid pressed closed too briefly. | • Press chamber lid closed more firmly and for longer. |
| | • Chamber lid gasket is dirty. | • Clean the chamber lid gasket. |
| | • Chamber lid gasket is damaged. | • Notify the service department. |
| Seal seam not airtight - pack is slack. | • Sealing time is set incorrectly. | • Correct the sealing time. |
| | • Target pressure value incorrectly set. | • Correct the target pressure value. |

| Symptom | Cause | Solution |
|---|---|---|
| | • Pouch neck is clamped by chamber lid. | • Insert the film pouch so that the pouch neck lies within the chamber. |
| | • Seal seam is dirty. | • Keep sealing bar and film pouch clean. |
| | • Pack not air-tight. | • Use a new film pouch. |
| | • Film pouch not suitable. | • Use a film pouch suitable for sealing. |
| | • The sealing force is not sufficient. | • Test settings. Sufficient sealing force is only achieved if the target pressure is set under 400 mbar. |
| | • Sealing bar damaged. | • Notify the service department. |
| The target pressure value is not reached. | • The set target pressure is not achieved (e.g. product contains water). | • Set a higher target pressure. |
| | • Chamber lid gasket is dirty. | • Clean the chamber lid gasket. |
| | • Insufficient oil quantity or oil in the vacuum pump is too old. | • Refill or replace oil. |
| | • Chamber lid gasket is damaged. | • Notify the service department. |
| | • Evacuation system is not air-tight. | • Notify the service department. |
| Odour or smoke. | • Air de-oiling element defective. | • Notify the service department. |
| | • Oil check valve of vacuum pump is blocked. | • Notify the service department. |

# 9 Shutdown, transport, storage

**Info**
Observe the safety instructions, see Section 1 "SAFETY".

## 9.1 Shutting down the machine

### 9.1.1 Cleaning the machine

- Perform intensive cleaning of the machine, see Section 6.2 "CLEANING THE MACHINE".

### 9.1.2 Preserving the machine

- Preserving the machine, see Section 6.1.7 "CORROSION PROTECTION AND LUBRICATION".

### 9.1.3 Closing and disconnecting supply lines

- Close lid.
- Lock lid in place.
- Close stop valve for the gas supply, if present.
- If present, remove the gas hose from the inert gas connection.
- Disconnect the machine from the mains electricity.

## 9.2 Transporting the machine

### 9.2.1 Transporting the machine

- Wear personal protective equipment.

**WARNING**

**Injury hazard!**
The machine is heavy.
Carrying the machine can cause injuries.
- Have a second person assist you.

**NOTICE** **Danger of equipment damage!**
At an inclination of more than 15°, the oil in the vacuum pump shifts.
The air de-oiling elements will get wet from the oil and be rendered useless. This will damage the vacuum pump.

- Transport and set the machine down as horizontally as possible.
- Do NOT tilt the machine.

- Carefully raise the machine.
  - For machine dimensions and weight, see "Technical specifications".
- Transporting the machine
  - Avoid severe jolts.

## 9.3 Storing the machine

- Shutting down the machine.
- Select a suitable storage site.
  - Observe the ambient conditions for storing the machine, see "Technical specifications".
  - Ensure that the storage location is of adequate load-bearing capacity and keep the weight of the machine in mind, see "Technical specifications".
- If necessary, cover the machine with film.

# 10 Disposal

## 10.1 Disposing of the machine

**Info**

- Sealing bars can be reused on other machines of the same series.
- If disposal of the machine is not handled by the manufacturer, dispose of the machine as described below.

➢ Disconnect the machine from the mains electricity, see Section 9.1.3 "CLOSING AND DISCONNECTING SUPPLY LINES".

➢ Dispose of the materials properly, observing all legal and company-internal regulations regarding environmental protection.

## 10.2 Dispose of operating materials

### 10.2.1 Disposing of oil and grease

**NOTICE** **Protect the environment!**
Operating materials and fluids are hazardous to the environment. Improper disposal is harmful to the environment.

➢ Handle operating materials and fluids properly.

➢ Dispose of operating materials and fluids at suitable collection points.

➢ Observe the environmental directives.

➢ Handle and dispose of lubricants and operating materials properly.

**Info**
Excerpt from the disposal directive:

- It is prohibited to mix used oil with other waste.
- Used oils may NOT be mixed with each other.
- Used oil filters should be collected, stored, transported and disposed of separately from other waste.

### 10.2.2 Disposing of film

**NOTICE**

**Protect the environment!**
Operating materials and fluids are hazardous to the environment.
Improper disposal is harmful to the environment.

- ➢ Handle operating materials and fluids properly.
- ➢ Dispose of operating materials and fluids at suitable collection points.
- ➢ Observe the environmental directives.

- ➢ Handle and dispose of films properly.

**Info**
Films are resources which can be recycled:

- Improper disposal damages our environment.
- Recycle films and film trim.
- Observe the disposal instructions of the film manufacturer.

### 10.2.3 Dispose of chemicals

**WARNING**

**Chemical burn hazard!**
Acidic cleansers are caustic. Caustic effects are not noticed immediately.
Contact with the skin can cause burns.

- ➢ Wear the prescribed personal protective gear when handling cleansers.
- ➢ Observe the manufacturer's instructions.

**WARNING**

**Fire hazard!**
Alcohol-based disinfectants are highly flammable.
Fire, naked light or smoking ignites the disinfectant and can thus cause fires.

- ➢ When disinfecting the machine, flames or naked lights are prohibited.
- ➢ Smoking is prohibited.
- ➢ Observe the instructions of the disinfectant manufacturer.

- ➢ Handle and dispose of cleansers and disinfectants properly.

**Info**
Improper disposal damages the environment:

- Observe the safety data sheets of the cleanser and disinfectant manufacturers.
- Follow the disposal instructions of the cleanser and disinfectant manufacturers.
- Observe regionally applicable disposal regulations.

# 11 Spare parts

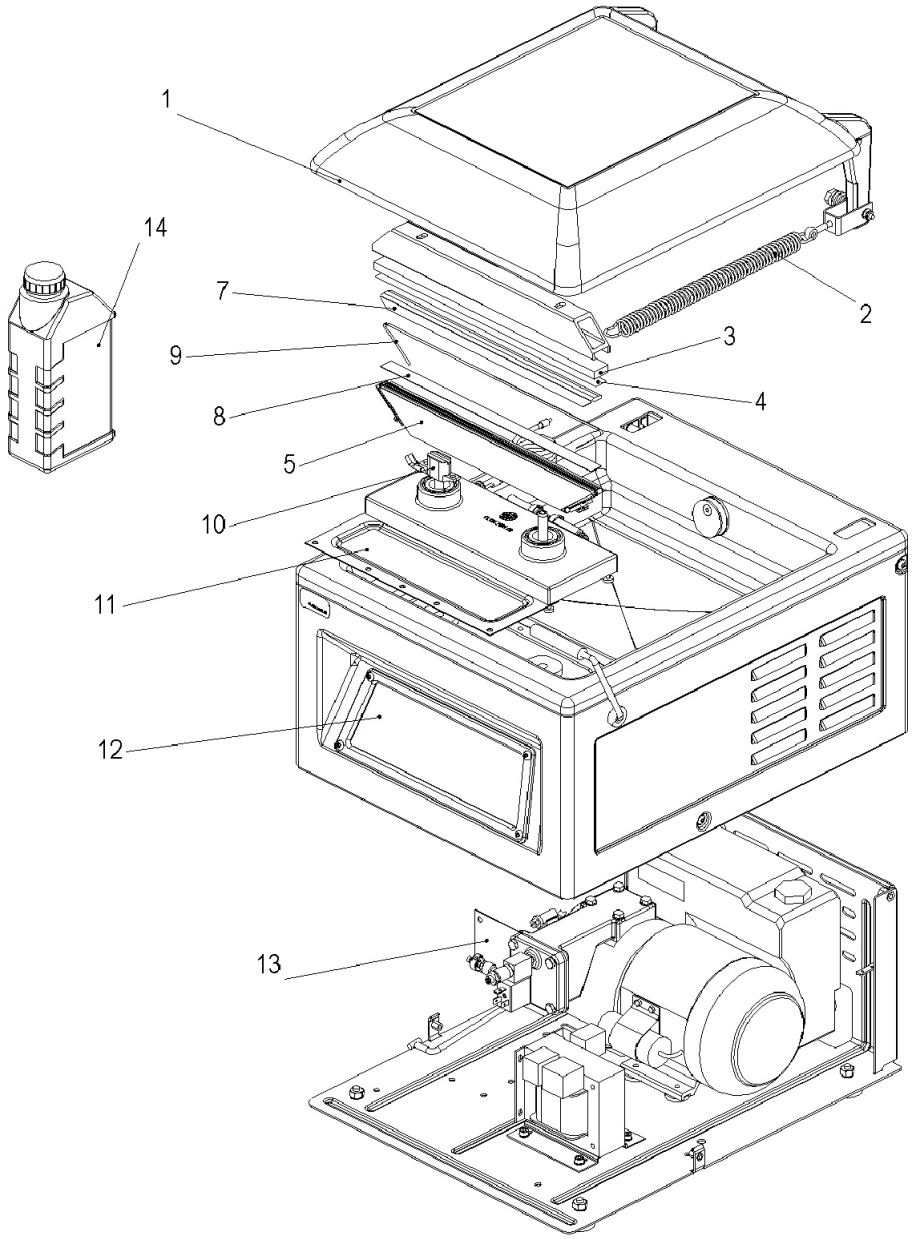



Fig. 23: Spare parts drawing (SAP-DIS 16000015492)

| Item | Material number | Designation | Quantity and unit of measurement |
|---|---|---|---|
| 1 | 105893127 | Round cord (chamber lid gasket) | 1.6 m |
| 2 | 105003538 | Tension spring | 1 pc. |

| Item | Material number | Designation | Quantity and unit of measurement |
|---|---|---|---|
| 3 | 81863151040 | Profile thread | 0.32 m |
| 4 | 81848121000 | Teflon tape 0.13 mm x 16 mm | 0.32 m |
| 5 | 105057615 | Sealing bar, complete (machine with gas flushing) | 1 pc. |
| 5 | 105409738 | Sealing bar, complete (machine without gas flushing) | 1 pc. |
| 6 | 11131117143 | Repair set for sealing bar (contains items 4, 7, 8, 9) | 1 pc. |
| 7 | 81848121006 | Teflon tape 0.13 mm x 40 mm | 0.39 m |
| 8 | 81848121001 | Teflon tape 0.25 mm x 16 mm | 0.43 m |
| 9 | 11131198220 | Vacromium tape (heating tape 3 mm) | 0.47 m |
| 10 | 85123126101 | Contact bushing | 2 pc. |
| 11 | 11181798100 | Diaphragm | 1 pc. |
| 12 | 105326253 | Control unit | 1 pc. |
| 13 | 11181798040 | Diaphragm | 1 pc. |
| 14 | 105048117 | Low odour synthetic oil for vacuum pumps | 1 l |
| 14 | 91111114013 | HD oil mineral oil | 1 l |
| 14 | 91111114014 | HD oil mineral oil | 20 l |
| 15 | 80121408407 | Maintenance set for vacuum pump R5-KB0008D/0010D | 1 pc. |

# Glossary

| | |
|---|---|
| **Automatic** | If the function *Automatic* is set, the machine will reach the optimum evacuation time and pressure depending on the product. |
| **Automatic sensitivity** | Determines the evacuation time and the evacuation pressure reached when evacuating with the *Automatic* function. The sensitivity is adjustable from 1 to 10. The lower the sensitivity, the lower the value of the evacuation pressure reached. |
| **Cooling down Sealing** | Value for the cooling down time of the seal seam. The vacuum in the chamber and the sealing pressure are preserved for this amount of time. The seal seam can harden. The sealing is switched off during this time. |
| **Cycle time** | The display contains the times of the individual procedures of the last packaging procedure. |
| **Delayed ventilation - Sealing** | The ventilation of the chamber begins with a delay after sealing. |
| **Distribution time - evacuation** | Switching interval between the completed evacuation process and the beginning of the gas flushing process. During the distribution time remaining air pockets in the products can escape before the package is sealed. |
| **Distribution time - Gas flushing** | Switching interval after the gas flushing process, during which the gas can distribute itself in the the film pouch. |
| **Evacuation pressure** | Is the pressure from which the film pouch and the chamber are evacuated. Pressure is measured in the chamber. |
| **Fill diaphragm** | During this time sealing pressure is applied to the sealing diaphragm. |
| **Gas flushing pressure** | Indicates the pressure until the film pouch is filled with inert gas. Pressure is measured in the chamber. |
| **Gas flushing time** | Indicates the amount of time for which the film pouch will be filled with inert gas. Pressure is not influenced by this. |
| **Hours of operation** | Shows the time the machine has been operating. The counter begins to count as soon as the machine is switched on and can not be reset. |
| **Machine cycles** | Counts the number of complete machine cycles. The counter can be modified and reset. It is used to control the quantities produced. |
| **MCV duration** | During this time the set vacuum is maintained during the MCV process (Pressure value + threshold). |
| **MCV threshold** | If the pressure value set here is exceeded during the MCV process, post-evacuation takes place automatically. |

| | |
|---|---|
| **Post-evacuation time** | This time extends the evacuation process. Through this, the reached evacuation pressure is lower than the set value. This time begins, when the set pressure is reached. Suitable for damp products. |
| **Rinsing time, gas flushing** | During this time the vacuum valve and gas valve are opened simultaneously. On one side of the chamber a vacuum is created, on the other side gas is supplied. The film pouch is thoroughly flushed with gas. This reduces the residual oxygen content. |
| **Sealing time** | During this time the film pouch is sealed. The sealing time depends on the particular material and thickness of the film pouch. |
| **Sealing time max** | This time determines the maximum value for the sealing time. |
| **Settings - Production Data** | Shows all currently set target values. |
| **Total cycles** | Shows the completed machine cycles. |
| **Vacuum pump - Production data** | Counts the vacuum pump's hours of operation. Counting starts as soon as the vacuum pump is turned on. The display cannot be changed. |
| **Vacuum test** | Automatic leakage test of the vacuum system and the sealing diaphragm. |
| **Ventilate diaphragm** | During this time the sealing diaphragm is evacuated. Sealing without sealing pressure. |

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